(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 199 328 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
24.04.2002 Bulletin 2002/17

(21) Application number: **01124845.7**

(22) Date of filing: **18.10.2001**

(51) Int Cl.[7]: **C08J 5/18**, D01F 9/145, D01F 9/15, D01F 9/155, C08K 7/06, H01L 23/373

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **19.10.2000 JP 2000319844**

(71) Applicant: **Polymatech Co., Ltd.**
Tokyo 103-8424 (JP)

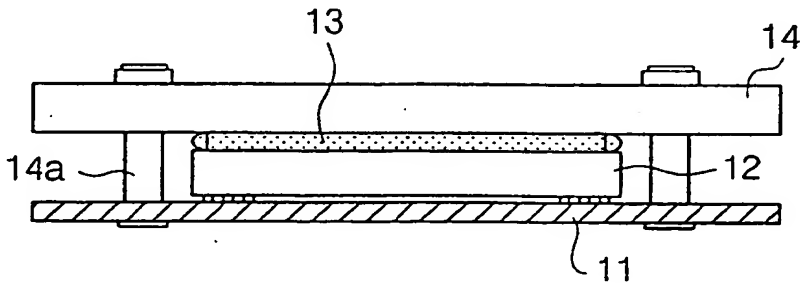
(72) Inventor: **Tobita, Masayuki,**
c/o Polymatech Co., Ltd. R & D
Kita-ku, Tokyo 114-0014 (JP)

(74) Representative: **Stenger, Watzke & Ring Patentanwälte**
Kaiser-Friedrich-Ring 70
40547 Düsseldorf (DE)

(54) Thermally conductive polymer sheet

(57) A thermally conductive polymer sheet includes a polymer matrix and graphitized carbon fibers as a thermally conductive filler. The graphitized carbon fibers are formed by spinning, infusibilization, carbonization, pulverized mesophase pitch before graphitizing the mesophase pitch. The graphitized carbon fibers have a coating layer of ferromagnetic material on their surface. The application of magnetic field to the coating layer allows the fibers to be oriented to be perpendicular to the sheet. Preferably, by X-ray diffractometry, the graphitized carbon fibers have an interplanar spacing (d002) of graphite planes of less than 0.3370 nm and a ratio (P101/P100) of diffraction peak (101) to diffraction peak (100) of at least 1.15. The ferromagnetic material is preferably at least one of a metal, an alloy, or a compound selected from the group consisting of nickel, cobalt and iron.

Fig.1



EP 1 199 328 A1

Fig.1

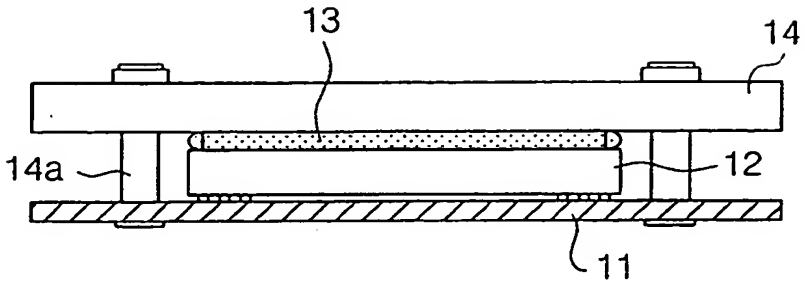


Fig.2

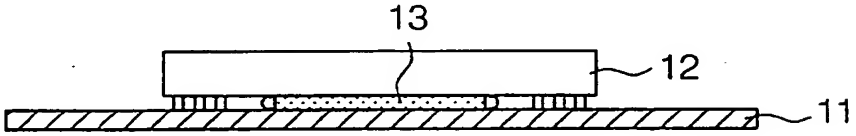


Fig.3

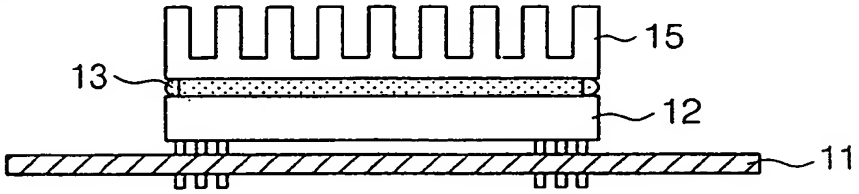
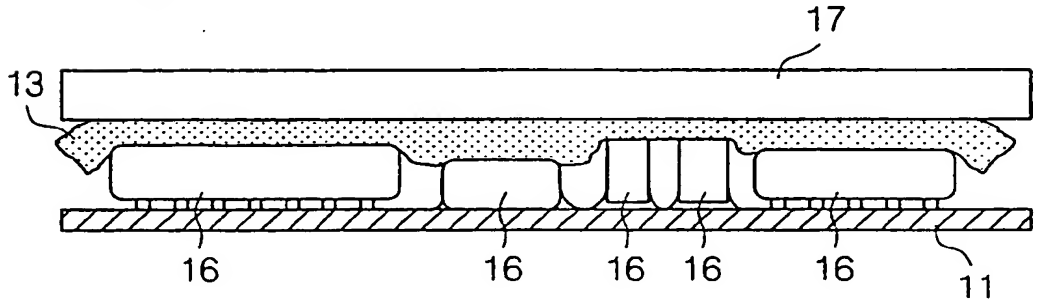


Fig.4



BNSDOCID: <EP_____1199328A1_I_>

Fig.5A

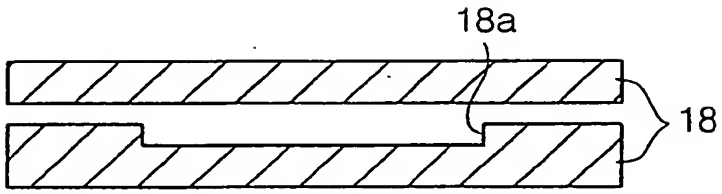


Fig.5B

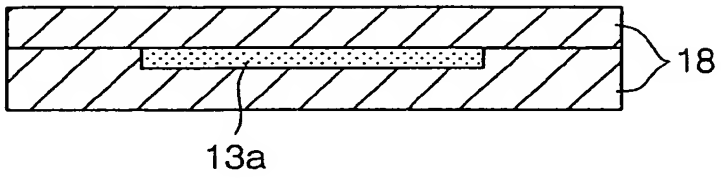
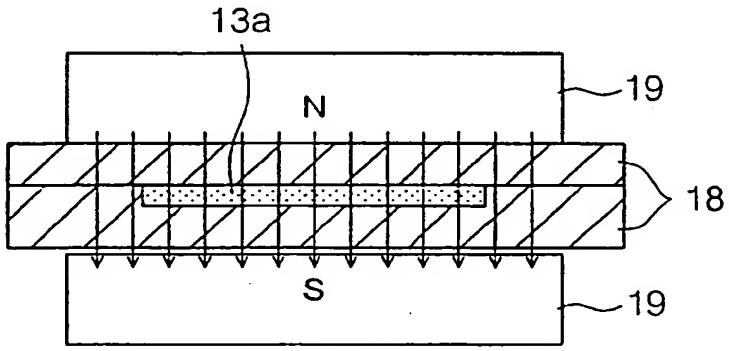


Fig.5C



BNSDOCID: <EP_____1199328A1_I_>

Fig.6

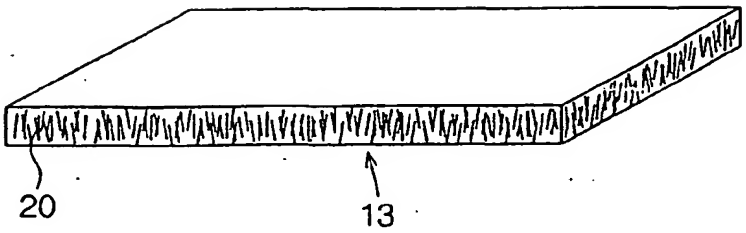


Fig.7

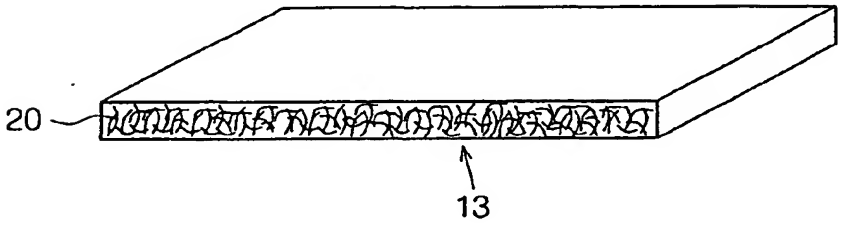


Fig.8

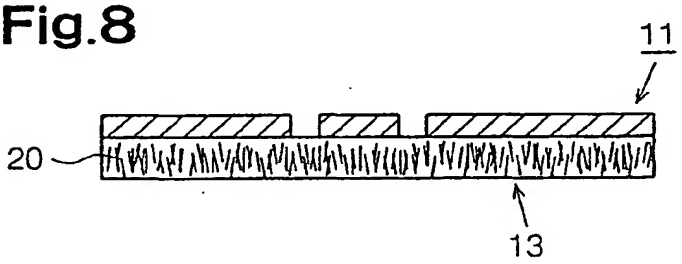
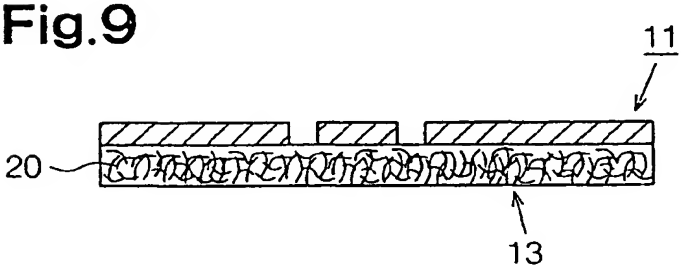


Fig.9



BNSDOCID: <EP_____1199328A1_I_>